

**REMARKS**

Claims 1 and 5-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,776,195 to Blasko et al in view of U.S. Patent 6,881,460 to Inaba et al.

Blasko et al was cited as disclosing a tubular polymeric laminate including an inner fluoropolymer layer (thermoplastic resin layer), an outer nylon layer (polyamide-based resin layer), and another resin layer (thermoplastic polymer layer) bonded directly to the fluoropolymer layer. Further, because it is an ethylene-based fluoropolymer, the Examiner considered that the thermoplastic resin would have a carbonyl functional group, where the first layer (polyamide) is directly bonded to the second layer (fluoropolymer) through thermal “fusion” bonding. The Examiner relied on Inaba et al as disclosing a multilayer molding having a polyamide-based resin as an outer layer having an amine value of 10-35 (equivalents/10<sup>6</sup> g) so as to provide a satisfactory level of adhesion strength to an inner layer comprising a fluorine-containing resin. The reason for rejection was that it would have been obvious to apply the amine value of Inaba et al to the polyamide-based resin of Blasko et al so as to promote adhesion and mechanical properties in a multilayer resin molding.

Applicants respond as follows.

The laminated resin molding of the invention comprises a thermoplastic polymer layer (A), a polyamide-based resin layer (B) and a thermoplastic resin layer (C). Furthermore, the laminated resin molding is obtained by a method which comprises laminating by a simultaneous multi-layer coextrusion technique using a coextruding machine comprising a die and a plurality of extruders each for feeding a resin to the die.

As previously discussed, Blasko et al does not disclose either a multi-layer tube obtained by simultaneous multi-layer coextrusion of three or more layers or a multi-layer tube having good flexibility.

In the response filed April 20, 2009, Applicants explained why the moldings obtained by sequential extrusion are materially different from the claimed moldings obtained by simultaneous multi-layer extrusion. Specifically, in sequential extrusion, because the outer layer is extruded on a non-melted and cooled layer, the bonding strength is insufficient.

In the “Response to Arguments,” the Examiner noted Applicants’ explanation, but required that the arguments presented by Applicants regarding insufficient bonding strength of the molding when produced by sequential extrusion to be supported by a Declaration or Affidavit.

In accordance with the Examiner’s suggestion, Takeshi Inaba, the sole inventor of the invention described and claimed in the present application, submits herewith his Declaration under Rule 132, demonstrating that in sequential extrusion, because the outer layer is extruded on a non-melted and cooled layer, the bonding strength is inadequate.

In more detail, using a two-resin two-layer coextruding machine equipped with a multi-layer die, a first tube with the intermediate layer (PA-E) and the inner layer (F-A) was continuously molded by feeding the polyamide-based resin and fluorine-containing ethylenic polymer specified in Table 7 (see page 3 of the Declaration) to the extruders for the middle layer and inner layer, respectively. Then, the first tube was conveyed through a cooling bath to the cross head die. The thermoplastic resin (TPU1) was extruded onto a surface of the first tube by

feeding the thermoplastic resin specified in Table 7 to the extruder for an outer layer to give the second tube. Then, the second tube was conveyed through the cooling bath to the puller. The molding conditions and evaluation results of the tube thus obtained (Example 31) are shown in Table 7. As a result, the outer thermoplastic polymer layer (TPU1) separated from the intermediate polyamide-based resin layer (PA-E) by force of hand, thus demonstrating that in sequential extrusion, because the outer layer is extruded on a non-melted and cooled layer, the bonding strength is insufficient.

In contrast, in Experimental Example 1 of the invention prepared by simultaneous multi-layer coextrusion of an outer layer thermoplastic polymer TPU1, an intermediate layer resin PAE and an inner layer resin F-A the same as an Example 31, no peeling of the outer layer from the intermediate layer was observed, and the intermediate layer/inner layer exhibited an adhesive strength of 45 N/cm.

The above-related test results demonstrate that there is an unobvious difference between the laminated resin molding of the invention obtained by simultaneous multi-layer coextrusion as claimed in claim 1 and moldings obtained by sequential extrusion as taught by Blasko et al. Thus, simply applying an amine value of 10-35 (equivalents/ $10^6$  g) as taught by Inaba et al to the tubular composite of Blasko et al would not achieve the present invention.

In view of the Declaration evidence submitted herewith and the above remarks, it is respectfully submitted that the present claims are patentable over Blasko et al in view of Inaba et al, and withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Withdrawal of all rejections and allowance of claims 1 and 5-15 is earnestly solicited.

RESPONSE UNDER 37 C.F.R. § 1.114(c)  
U.S. Application No.: 10/560,910

Attorney Docket No.: Q91600

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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